

### Abstract of the Invention

The invention features an RF plasma generator. The RF plasma generator includes a variable frequency RF generator, comprising an H-bridge and an RF output. The RF generator generates electromagnetic radiation having a power. The RF plasma generator further includes a matching network that includes at least one variable impedance component. The matching network also includes a first port that is electromagnetically coupled to the output of the RF generator and a second port. The RF plasma generator also includes a load that is electromagnetically coupled to the second port of the matching network, and a plasma chamber for containing a plasma having a power. The plasma chamber is electromagnetically coupled to the load and receives electromagnetic radiation having a power from the load. Adjusting at least one of the frequency of the RF generator and the variable impedance component in the matching network changes the power in the plasma.

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